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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,513	01/02/2002	Andreas Krell	P21519	6687

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,513

Applicant(s)

KRELL ET AL.

Examiner

Michael A Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-64 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 51 and 58 is/are allowed.
- 6) ☒ Claim(s) 24-50, 52-57 and 59-64 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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The specification is objected to because it does not contain an Abstract of the Disclosure as required by 37 C.F.R. § 1.72(b). An Abstract on a separate sheet is required.

Applicant is reminded of the proper language and format of an Abstract of the Disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said", should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Claims 24-50, 52-57, 59-64 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24 and 29 are indefinite as to the "further annealing" limitation of step (e) because the claims do not positively define a previous annealing step, thus how is this a further limitation.

Claim 34 is indefinite as to the term "low" because this is a relative term which renders the claim indefinite. This term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What is considered a "low" nanometer size?

Claims 38 and 42 are indefinite as to the phrase "wherein the aged the hydrolyzed" because this phrase does not make sense.

Claim 38 is also indefinite as to the phrase "the hydrolyzed solution or sol of (c) according to claim 24" because claim 24 is directed to a process of making nanocorundum and

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not a hydrolyzed solution or sol, per se. A claim can not depend on an intermediate of a previous claim. To overcome this rejection this claim should be rewritten in independent form.

Claim 42 is also indefinite as to the phrase "the hydrolyzed solution or sol of (c) according to claim 29" because claim 29 is directed to a process of making nanocorundum and **not** a hydrolyzed solution or sol, per se. A claim can not depend on an intermediate of a previous claim. To overcome this rejection this claim should be rewritten in independent form.

Claim 46 is indefinite as to the phrase " Al_2O_3 sintered product, produced according to claim 28" because claim 28 is **not** directed to the production of sintered products. To overcome this rejection, the above phrase should be changed to " **Al_2O_3 sintered product comprising a sintered mass of the nanocorundum produced according to claim 28**".

Claim 47 is indefinite as to the phrase " Al_2O_3 sintered product, produced according to claim 38" because claim 38 is **not** directed to the production of sintered products but rather sintered layers. To overcome this rejection, the above phrase should be changed to " **Al_2O_3 sintered product comprising sintered corundum layers on a substrate produced according to claim 38**".

Claim 48 is indefinite as to the phrase " Al_2O_3 sintered product, produced according to claim 42" because claim 42 is **not** directed to the production of sintered products but rather sintered layers. To overcome this rejection, the above phrase should be changed to " **Al_2O_3 sintered product comprising sintered corundum layers on a substrate produced according to claim 42**".

Claim 49 is indefinite as to the phrase "Dense sinter corundum layers, produced according to claim 24" because claim 24 is **not** directed to the production of corundum layers.

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Claim 50 is indefinite as to the phrase "Dense sinter corundum layers, produced according to claim 29" because claim 29 is **not** directed to the production of corundum layers.

Claims 49-50 are also indefinite as to the phrase "materially different type of substrate" because the examiner is unclear as to what this encompasses, thus rendering the scope of the claims unclear.

Claim 52 is also indefinite as to the phrase "the hydrolyzed solution or sol of (c) according to claim 51" because claim 51 is directed to a process of making nanoporous alumina and **not** a hydrolyzed solution or sol, per se. A claim can not depend on an intermediate of a previous claim. To overcome this rejection this claim should be rewritten in independent form.

Claims 54 and 51 are indefinite because the examiner is unclear as to when this step takes place.

Claim 55 is indefinite as to the phrase "particles of... aluminum oxide according to claim 51" because claim 51 is **not** directed to particles of aluminum oxide but a **process for making Al₂O₃ sintered products**.

Claim 59 is also indefinite as to the phrase "the hydrolyzed solution or sol of (c) according to claim 58" because claim 58 is directed to a process of making nanoporous alumina and **not** a hydrolyzed solution or sol, per se. A claim can not depend on an intermediate of a previous claim. To overcome this rejection this claim should be rewritten in independent form.

Claim 62 is indefinite as to the phrase "particles of... aluminum oxide according to claim 58" because claim 58 is **not** directed to particles of aluminum oxide but a **process for making Al₂O₃ sintered products**.

The other claims are indefinite because they depend on indefinite claims.

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In view of the above indefinite rejections based on improper dependency, it is suggested that these claims be rewritten in independent form.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims ~~34, 35~~ and ~~46-50~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 294,208.

EP 294,208 teaches on page 2, lines 60-62, page 7, lines 17-50 and page 9, lines 56+, an alpha alumina sintered material having a size less than 0.5 microns (nanocorundum). The material can contain 32% porosity and have an average pore size of 24.5 nm. The material can be sintered at the claimed temperature to make dense or porous bodies. The material can also be used as a coating on a substrate.

The reference teaches an alpha alumina sintered material having a size less than 0.5 microns (nanocorundum) and although the D_{84} value is not literally defined, as can be seen from this reference, the average size (D_{50}) is less than 0.5 microns, thus the D_{84} value must also be less than this value. In view of this, the claimed size is broadly encompassed by the reference. With respect to the redispersible limitation, it is the examiners position that since the material (powder) has the same size, it can be re-dispersed, thus reading on this limitation in the absence of any

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evidence showing the contrary. The reference also teaches an alpha alumina sintered material having a pore size and porosity within the scope of instant claims 46-48 and can be applied to a substrate. In view of the above, the limitations of claims 34, 35 and 46-50 are obvious because the reference teaches size and porosity values which encompasses the claimed values and therefore the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)". Finally, applicants use process limitations to define the product and "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964.

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Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 554,908.

EP 554,908 teaches on page 3, lines 30+ and claim 1, an alpha alumina sintered material having a nanometer size (nanocorundum). The material can be sintered at the claimed temperature bodies.

The reference teaches an alpha alumina sintered material having a nanometer size (nanocorundum) and although the D_{84} value is not literally defined, as can be seen from this reference, the size (D_{95}) is 20-50 nm and less than 5% of the particle are greater than 100 nm, thus the D_{84} value must be within the claimed range. In view of this, the claimed size is broadly encompassed by the reference. With respect to the redisperible limitation, it is the examiners

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position that since the material (powder) has the same size, it can be re-dispersed, thus reading on this limitation in the absence of any evidence showing the contrary. In view of the above, the limitations of claims 34 and 35 are obvious because the reference teaches size values which encompasses the claimed values and therefore the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)".

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 46-48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6 and 21 of U.S. Patent No. 6,399,528. Although the conflicting claims are not identical, they are not patentably distinct from each other because the reduction to practice of the patent claims would render obvious the instant claims. Claim 6 of the patent teaches an alumina product have a porosity and pore size within the claimed range. The process defined by the claims states that the products are sintered, thus

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instant claims 46-48 are obvious. Applicants use process limitations to define the product and "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964.

Claims 51 and 58 are allowable over the prior art of record.

The claims not rejected on prior art would be allowable if amended to overcome the indefinite rejections above.

The reference of record fail to teach or suggest the claimed methods of making nanocorundum or nanoporous alumina and products resulting therefrom, wherein the methods and products comprises the claimed specific limitations.

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

"A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968)". In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

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Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548.
Evidence of unexpected results must be commensurate in scope with the subject matter claimed.
In re Linder 173 USPQ 356.

The additional references cited on the 1449 have been reviewed by the examiner and are considered to be art of interest since they are cumulative to or less than the art relied upon in the above rejections.

Any foreign language documents submitted by applicant has been considered to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Marcheschi whose telephone number is (703) 308-3815. The examiner can be normally be reached on Monday through Thursday between the hours of 8:30-6:00 and every other Friday between the hours of 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Mark L. Bell, can be reached at (703) 308-3823.

Amendments can also be sent by fax to the numbers set forth below:

For after final amendments, the fax number is (703) 872-9311;

For non-final amendments, the fax number is 703 872-9310.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Michael Marcheschi

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5/03


MICHAEL MARCHESCHI
PRIMARY EXAMINER